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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Applicant:

NOAM KEDEM

Serial No.: 10/634,871

Filed: August 6, 2003

For: CONNECTOR WITH
OPPOSITE-FACING PORTS

Examiner: Felix O. Figueora

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Group Art Unit: 2833

Attorney
Docket: 246/217

TRANSMITTAL OF APPEAL BRIEF

Commissioner of Patents and Trademarks
Washington, DC 20231

Dear Sir:

Transmitted herewith in triplicate is the APPEAL BRIEF in this application
with respect to the Notice of Appeal filed on February 21, 2006.

The application is on behalf of

☒ other than a small entity

☐ small entity

verified statement:

☐ attached

☐ already filed

Pursuant to 37 CFR 1.17(f) the fee for filing the Appeal Brief is:

☐ small entity \$ 170

☒ other than a small entity \$ 340

Appeal Brief fee due \$ 340

____ Applicant petitions for an extension of time under 37 CFR 1.136 for the total number of months checked below:

	<u>small entity</u>	<u>not small entity</u>
____ one month	\$ 55	\$ 110
____ two months	\$ 215	\$ 430
____ three months	\$ 490	\$ 980
____ four months	\$ 765	\$ 1530

If an additional extension of time is required please consider this a petition therefor.

The total fee due is:

Appeal brief	\$ 340
Extension fee (if any)	\$ ____
TOTAL FEE DUE	\$ ____

Please charge Account No. 06-2140 the sum of \$ _____. A duplicate copy of this transmittal letter is attached.

If any additional extension and/or fee is required, this is a request therefor and to charge Account No. 06-2140.

If any additional fee for claims is required, please charge Account No. 06-2140.

Respectfully submitted,

Mark M. Friedman
Attorney for Applicant
Registration No. 33,883



THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Attorney  
Docket: 246/217

Commissioner of Patents and Trademarks  
Washington, DC 20231  
**ATTENTION: Board of Patent Appeals and Interferences**

**APPELLANT’S BRIEF**

Dear Sir:

This is in furtherance of the Notice of Appeal filed in this case on February 21, 2006.

The fees required under § 1.17(f) and any required petition for extension of time for filing this brief and fees therefor are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief is transmitted in triplicate.

This brief contains these items under the following headings and in the order set forth below:

- I. REAL PARTY IN INTEREST
- II. RELATED APPEALS AND INTERFERENCES
- III. STATUS OF CLAIMS
- IV. STATUS OF AMENDMENTS

V. SUMMARY OF INVENTION

VI. ISSUES

VII. ARGUMENTS

\_\_\_\_ ARGUMENT: VIIIA REJECTIONS UNDER 35 U.S.C. 103

VIII. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

IX. APPENDIX OF EVIDENCE

X. APPENDIX OF RELATED PROCEEDINGS

**I. REAL PARTY IN INTEREST**

The real party in interest in this case is:

M-Systems Flash Disk Pioneers, Ltd.

Central Park 2000

Atir Yeda 7

44425 Kfar Saba

ISRAEL

**II. RELATED APPEALS AND INTERFERENCES**

NONE

### **III. STATUS OF CLAIMS**

#### **A. TOTAL NUMBER OF CLAIMS IN APPLICATION**

Claims in the application are: 1-22

#### **B. STATUS OF ALL THE CLAIMS**

1. Claims cancelled: 1, 2, 5-7, 11, 12, 14, 15, 17
2. Claims withdrawn from consideration but not cancelled: NONE
3. Claims pending: 3, 4, 8-10, 13, 16, 18-22
4. Claims allowed: NONE
5. Claims rejected: 3, 4, 8-10, 13, 16, 18-22

#### **C. CLAIMS ON APPEAL**

The claims on appeal are: 3, 4, 8-10, 13, 16, 18-22

#### **IV. STATUS OF AMENDMENTS**

No amendments were filed subsequent to the final rejection mailed January 11, 2006.



## V. SUMMARY OF INVENTION

Independent claim 13 recites a system board (Figures 4 and 5, item **80**) that comprises a connector (Figures 3A, 3B and 4, item **70**) and a peripheral device (Figure 5 item **90**). The connector includes a first port (Figures 3A and 4, item **72**), situated at an exterior edge of the system board, that faces outward from the exterior edge. The connector also includes a second port (Figure 3B item **74**) that faces inward to the interior of the system board. The peripheral device is operationally connected to the inward-facing port (page 6 lines 13-14).

Dependent claim 3 adds to independent claim 13 the limitation that the two ports are substantially functionally identical (page 6 lines 2-3: both ports are USB ports).

Dependent claim 4 adds to dependent claim 3 the limitation that the two ports are USB ports (page 6 lines 2-3: both ports are USB ports).

Independent claim 19 recites a system board (Figures 4 and 5, item **80**) that comprises a connector (Figures 3A, 3B and 4, item **70**). The connector includes a first port (Figures 3A and 4, item **72**), situated at an exterior edge of the system board, that faces outward from the exterior edge. The connector also includes a second port (Figures 3B and 4, item **74**) that faces inward to the interior of the system board in order to accommodate a peripheral device (Figure 5 item **90**) that is electrically connected to the system board only via the second port (Figure 5: item **90** is connected to item **80** only via item **74**).

Independent claim 20 recites a system board (Figures 4 and 5, item **80**) that comprises a connector (Figures 3A, 3B and 4, item **70**). The connector includes a first port (Figures 3A and 4, item **72**), situated at an exterior edge of the system board, that faces outward from the exterior edge. The connector also includes a second port

(Figures 3B and 4, item 74) that faces inward to the interior of the system board. The two ports face in respective first and second directions that are parallel to the system board.

Independent claim 21 recites a system board (Figures 4 and 5, item 80) that comprises a connector (Figures 3A, 3B and 4, item 70). The connector includes a first port (Figures 3A and 4, item 72), situated at an exterior edge of the system board, that faces outward from the exterior edge. The connector also includes a second port (Figures 3B and 4, item 74) that faces inward to the interior of the system board. The connector also includes a mechanism (Figures 3A and 3B, item 56), separate from the ports, for attaching the connector to the system board.

Independent claim 22 recites a system board (Figures 4 and 5, item 80) that comprises a connector (Figures 3A, 3B and 4, item 70). The connector includes a first recess (Figures 3A and 4, item 72) for facilitating a mechanical and electrical connection of the connector to a first peripheral device (page 6 lines 10-11) and a second recess (Figures 3B and 4, item 74) for facilitating a mechanical and electrical connection of the connector to a second peripheral device (page 6 line 9). The first recess is situated at an exterior edge of the system board and faces outward from the exterior edge. The second recess faces inward to the interior of the system board.

## **VI. ISSUES**

Whether claims 3, 4, 8-10, 13, 16 and 18-22 are patentable over Meng, US Patent No. 6, 231,399 (henceforth, “Meng ‘399”).

## VII. ARGUMENTS

### VIIIA ARGUMENTS - REJECTIONS UNDER 35 U.S.C. 103

#### VIIIA-1: Claims 3, 4, 8-10, 13, 16 and 18-22

Meng '399 teaches a card edge connector assembly **10** for connecting two daughter boards to a mother board of a computer. Card edge assembly **10** is connected mechanically to the mother board using boardlocks **60** and electrically to the daughter boards using opposite-facing card edge connectors **14** and **16**.

The Examiner proposes that it would be obvious to position card edge assembly **10** of Meng '399 with one of the card edge connectors facing outward at an exterior edge of the mother board, as in the present invention.

In order to reject claims 3, 4, 8-10, 13, 16 and 18-22 under § 103(a), the Examiner must make a *prima facie* case for obviousness. This the Examiner has failed to do.

First of all, in comparing the invention to the prior art, the invention must be considered as a whole. See *In re Antonie*, 559 F.2d 618, 620, 195 USPQ 6,8 (CCPA 1977):

In determining whether the invention as a whole would have been obvious under 35 U.S.C. 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look not only to the subject matter which is literally recited in the claim in question...but also to those properties of the subject matter which are inherent in the subject matter and are disclosed in the specification...Just as we look to a chemical and its properties when we examine the obviousness of a composition of matter claim, it is this invention *as a whole*, and not some part of it, which must be obvious under 35 U.S.C. 103. (emphasis in original) (citations omitted)

The present invention places one port/recess of a connector at an exterior edge of a system board of a computer and facing outward, and another port/recess of the connector facing inward. This allows the same connector to be used to connect, to the system board, a peripheral that is outside the computer and another peripheral that is

inside the computer. The prior art generally conceives of connectors as being for either interior connections or for exterior connections, but not for both. In the specific case of Meng '399, the purpose of card edge connector assembly 10 is for the strictly interior connection of two daughter boards to a mother board. Meng '399 describes the problem that he solves as follows:

...the daughter board is horizontally inserted into or ejected out of a card edge connector proximate to the mother board to which the connector is mounted. Such a low position of the daughter board interferes with an efficient layout of components on the mother board. Thus, an assembly of two or more card edge connectors which engage daughter boards at an elevated position is desirable. (emphasis added)

and the solution taught by Meng '399 is (column 2 lines 62-65)

The two card edge connectors 14, 16 of the card edge connector assembly 10 engage daughter boards at an elevated position thereby promoting an efficient layout of components on the mother board. (emphasis added)

In other words, the daughter boards are inside the computer, parallel to the mother board, but far enough away from the mother board to not interfere with the components on the mother board.

Second, as stated in the Manual of Patent Examining Procedure, page 2100-128:

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference...must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

In the present case, there is no motivation in the prior art to modify the teachings of Meng '399. Continuing the citation of the Manual of Patent Examining Procedure, on page 2100-131:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (Claims were directed to an apparatus for producing an aerated cementitious composition by drawing air into the cementitious composition by driving the output pump at a capacity greater than the feed rate. The prior art reference taught that the feed means can be run at a variable speed, however the court found that this does not require that the output pump be run at the claimed speed so that air is drawn into the mixing chamber and is entrained in the ingredients during operation. Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation to do so." 916 F.2d at 682, 16 USPQ2d at 1432.)

Similarly, in the present case, even though, as noted by the Examiner, Meng '399 teaches (column 3 lines 3-5) that

...changes may be made in detail, especially in matters of shape, size and arrangement of parts within the principles of the invention...

these changes must be within the principle of the invention, which is to position two daughter boards parallel to the mother board, inside the computer, far enough from the mother board to not interfere with the components on the mother board. There is neither a hint nor a suggestion in Meng '399 of positioning card edge connector assembly 10 with one of the card edge connectors facing outward from an exterior edge of the mother board, even though this, too, would solve the problem addressed by Meng '399, by placing one of the daughter boards outside the computer, or at least laterally beyond the mother board.

These arguments were presented in response to the Office Action mailed September 2, 2005. In response to these arguments, the Examiner proposed that one ordinarily skilled in the art would have been motivated to place card edge assembly

10 of Meng '399 near an edge of the motherboard to improve accessibility to one or both of card edge connectors 14 and 16. The Examiner's proposal is correct but irrelevant. The innovative limitation of independent claims 13 and 19-22 is not merely that the connector is near the edge of the system board, but that one of the ports/recesses faces outward while the other port/recess faces inward. As noted above, the prior art generally conceives of connectors as being for either interior connections or for exterior connections. The present invention conceives of one port/recess facing outward for an exterior connection while the other port/recess faces inward for an interior connection.

#### VIIIA-2: Claim 3

Although claim 3 is allowable merely by virtue of depending from independent claim 13, Applicant takes the liberty of pointing out an additional reason why this claim is allowable.

Claim 3 recites the limitation that the two ports are substantially functionally identical. This is contrary to the conventional wisdom, which uses different kinds of ports for components that are intended to be housed within a computer and components that are intended to be mounted outside the computer. An exterior port needs to be more robust than an interior port, because peripheral devices that are mounted outside the computer generally are expected to be reversibly mounted on the computer, so that an exterior port must be designed to withstand more cycles of connection and disconnection than an interior port, and because an exterior port is exposed to the elements when the port is not in use.

This argument was presented in response to the Office Action mailed September 2, 2005. The Examiner responded that claim 3 does not recite any language to differentiate the inward-facing port from the outward-facing port. The



Examiner has missed the point of claim 3. The two ports are distinguished by facing inward and outward, as recited in independent claim 13. The point of claim 3 is that, notwithstanding the different directions in which the ports face, there are no functional differences between the two ports. According to the prior art, ports for accommodating interior vs. exterior components would be expected to be functionally different.

#### VIIIA-3: Claim 4

Although claim 4 is allowable merely by virtue of depending from independent claim 13 via dependent claim 3, Applicant takes the liberty of pointing out an additional reason why this claim is allowable.

Claim 4 recites the limitation that the two ports are USB ports. As of the priority date of the above-identified patent application, the conventional wisdom was to use USB ports for connecting peripheral devices to computers, not for connecting components within the same computer. Attached please find a description of Universal Serial Bus (USB) dated July 24, 2003. Note the first line of the description:

**Universal Serial Bus (USB)** is a serial bus standard for connecting devices to a computer (usually a PC). (emphasis added)

This argument was presented in response to the Office Action mailed September 2, 2005. The Examiner responded that a USB connector is not restricted to exterior use only. While it is true that there is nothing inherent in the USB standard to prevent the use of a USB port to connect components within the same computer, this is not why the USB standard was developed. For example, components within the same computer do not need the “plug and play” feature that is supported by the USB standard. The USB standard was developed specifically for connecting external devices to computers, and the conventional wisdom on the priority date of the above-



identified patent application was to use USB connectors for that purpose, and not for connecting components within the same computer.

Respectfully submitted,

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Mark M. Friedman  
Attorney for Applicant  
Registration No. 33,883

Date: March 6, 2006

## VIII. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

The text of the claims on appeal is:

3. The system board of claim 13, wherein said ports are substantially functionally identical.
4. The system board of claim 3, wherein said ports are USB ports.
8. A host device comprising the system board of claim 13.
9. The host device of claim 8, wherein the host device is a computer.
10. The host device of claim 8, wherein the host device is one of the group consisting of a network router, a TV set top box and a mobile device.
13. A system board comprising:
  - (a) a connector that includes:
    - (i) a first port situated at an exterior edge of the system board and facing outward from said exterior edge, and
    - (ii) a second port, facing inward to an interior of the system board; and
  - (b) a peripheral device operationally connected to said inward-facing port.
16. The system board of claim 20, wherein said first and second directions are opposite directions.

18. The system board of claim 13, wherein said peripheral device is electrically connected to the system board only via said inward-facing port.

19. A system board comprising a connector, the connector including:
- (a) a first port situated at an exterior edge of the system board and facing outward from said exterior edge; and
  - (b) a second port, facing inward to an interior of the system board in order to accommodate a peripheral device that is electrically connected to the system board only via said second port.

20. A system board comprising a connector, the connector including:
- (a) a first port situated at an exterior edge of the system board and facing outward from said exterior edge; and
  - (b) a second port, facing inward to an interior of the system board;

wherein said first and second ports face in respective first and second directions that are parallel to the system board.

21. A system board comprising a connector, the connector including:
- (a) a first port situated at an exterior edge of the system board and facing outward from said exterior edge; and
  - (b) a second port, facing inward to an interior of the system board; and
  - (c) a mechanism, separate from said ports, whereby said connector is attached to the system board.

22. A system board comprising a connector, the connector including:
- (a) a first recess, for facilitating a mechanical and electrical connection of said connector to a first peripheral device, said first recess being situated at an exterior edge of the system board and facing outward from said exterior edge; and
  - (b) a second recess, for facilitating a mechanical and electrical connection of said connector to a second peripheral device, said second recess facing inward to an interior of the system board.

IX. APPENDIX OF EVIDENCE

Wikipedia article on Universal Serial Bus, dated July 24, 2003

# Universal Serial Bus

From Wikipedia, the free encyclopedia

Revision as of 10:58, 24 July 2003; view current revision

← Older revision | Newer revision →

**Universal Serial Bus** (**USB**) is a serial bus standard for connecting devices to a computer (usually a PC).

Over a hundred devices can be connected to a single port in a tree-like fashion. Devices can be attached and removed whilst the computer is still powered on ("hot plugging and swapping"), and they can be supplied with power through the USB connection. Care is called for, however, when choosing a power supply for a USB system. It is very easy to overdraw a system's wattage when many USB devices are in use. USB hubs, both powered and unpowered are used to increase the number of attached devices. By using powered hubs (hub contains a separate power supply) power management concerns are minimized. Powered hubs supply power to downstream devices (within prescribed limits) without draining power from the upstream connection.

While USB defines four types of connectors for the attachment of devices to the bus, there are some examples where the mechanical layer has been changed. For example, IBM UltraPort is a USB connection on the top of notebooks CRTs, but it uses a different mechanical connector while preserving the USB signaling and protocol.

USB is used to connect peripherals such as mice, keyboards, scanners, digital cameras, printers, hard drives, and networking components to the main computer. For multimedia devices such as scanners and digital cameras, USB is the most common interconnect method. In printers, USB is also growing in popularity and displacing parallel ports because USB makes it simple to add more than one printer to a computer.

In the case of hard drives, USB is unlikely to completely replace buses such as ATA (IDE) and SCSI because USB is somewhat slower than those standards. The new Serial ATA standard allows transfer rates to approximately 150 MB (mega bytes) per second. However, USB, and especially USB 2.0 has the important advantage that it is possible to install and remove devices without opening the computer case, making it useful for external hard disks. Today a number of manufacturers offer portable USB 2.0 hard drives that offer performance nearly indistinguishable from conventional ATA (IDE) drives.

USB has not completely replaced AT keyboard connections and PS/2 mouse connections, but virtually all PC motherboards today have one or more USB ports. As of 2003 most new motherboards have multiple USB 2.0 high-speed ports.

USB 1.1 has two data rates. 1.5 Mbps for keyboards, mice, joysticks, and the like, and **full speed** at 12 Mbps (12 million bits per second). The USB 2.0 standard supports **high speed** at 480 Mbps along with operation at the **full speed** signalling rate of 12 Mbps. At this highest speed USB 2.0 is in direct competition with firewire.

USB 1.1 has been renamed to USB 2.0 Full speed by the USB Forum, and USB 2.0 has been renamed USB 2.0 High speed.

*See also:* ACCESS.bus

## External links

- USB home, including documentation (<http://www.usb.org/>)

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X. APPENDIX OF RELATED PROCEEDINGS

NONE